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THE EFFECT OF COMPETITIVENESS AND EFFICIENCY ON THE ADDED VALUE OF THE COPRA INDUSTRY (ISIC 10421) IN INDONESIA

Gita Yulia Putri, Muhammad Teguh, Deassy Apriani*, Bernadette Robiani
Department of Development Economics, Faculty of Economics, Sriwijaya University, Indonesia

Abstract

Industry copra in Indonesia still not yet get attention in a manner specifically by the government so that causing export copra experience that level fluctuate. This study aims to find out the competitiveness, level of efficiency and the influence of competitiveness and efficiency on the added value of the copra industry (ISIC 10421) in Indonesia. The type of data used is secondary data in the 2011-2020 period. This research, using competitiveness analysis with the Revealed Comparative Advantage method, and multiple linear regression. The results showed that variable competitiveness of Indonesia has the strength of competitiveness and comparative induction in the copra industry, as evidenced by the calculation of the method Revealed Comparative Advantage which has a value of 27.36. The efficiency of the copra industry is fairly inefficient with the average level of efficiency obtained is 0.83.

Keywords: *Copra Industry; Competitiveness; Revealed Comparative Advantage.*

JEL Classification: *D2, D4, L1*

INTRODUCTION

The processing industry sector is one of the driving tools for economic development in Indonesia. This is because the processing industry sector is considered a more advanced sector than other sectors. The processing industry occupies the first position, followed by agriculture, forestry and fishing, further mining and quarrying. The manufacturing industry as the sector that contributes the highest contribution in Gross Domestic Product, fluctuates over five years. The processing industry also has the potential to be developed is the coconut industry. Coconut is a superior commodity that has a social, cultural and economic role in people's lives. The area of coconut in Indonesia is 3.4 million hectares and has a production of 2.8 million tons (Directorate General of Plantations, 2021). One of the coconut derivative products that has an important function in Indonesia's economic growth is copra.

Copra is a semi-finished derivative product of coconut which makes it one of the reliable foreign exchange earners. This industry is commonly used as a raw material for making coconut oil (Rinaldi et *al.*, 2015). The development of the copra industry is currently very rapid, making the workforce in the copra industry tend to increase from year to year. According to data (Indonesia Statistic, 2019) the workforce in the copra industry has increased. The increase in labor has made the production of copra industry also increase.

The increase in copra production from 2016 to 2019 (except for 2018) caused the copra industry to produce output values. In 2016 the output value of the copra

*Corresponding Author: Deassy Apriani, Department of Development Economics, Faculty of Economics, Sriwijaya University Jl. Raya Palembang-Prabumulih KM. 32 Kabupaten Ogan Ilir, Sumatera Selatan, deassyapriani@fe.unsri.ac.id

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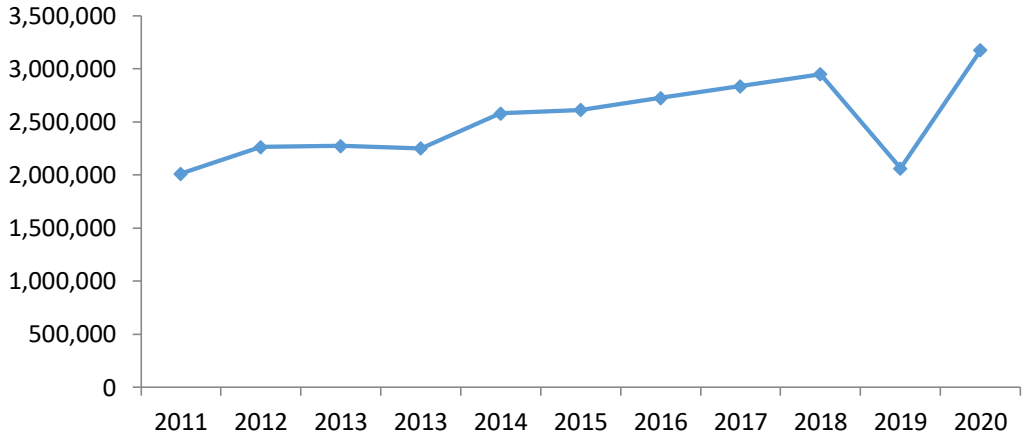
industry increased due to the high demand for coconut oil prices causing the output value of copra commodities to also be high. The achievement of increased output has resulted in the copra industry becoming one of the plantation commodities whose main goal is export activities (Noor, 2018). Indonesia is ranked third as the largest copra exporter in the world. The first position of the largest copra exporting country is occupied by Vietnam and followed by Thailand. The export destination countries for Indonesian copra commodities are Bangladesh, India, the Philippines, the Netherlands, Malaysia, South Korea (Dwiyani et al., 2021).

Figure 1 Copra Exports 2011-2020



Source: Indonesian Statistics (BPS), 2021

Figure 1 shows that the export development of the copra industry for 10 years has increased to decreased. In 2013 it experienced a decline due to weather factors that were quite high in some areas, causing high copra quality (water content) which had an impact on copra. However, in 2020 copra exports experienced an increase influenced by high coconut oil prices, causing copra exports to increase in the global market (Anastasya, 2020).

The copra industry in Indonesia has still not received special attention by the government, causing copra exports to fluctuate. Therefore, the importance of the role of performance in the copra industry in the development of a country and in meeting the needs of the community. The level of efficiency is related to the economic cost factor, if an industry experiences a high economic cost value, it will cause the industry to be inefficient which will ultimately affect, among other things, labor productivity and so on. So based on the explanation above, this research was conducted to determine the results of the influence of competitiveness and efficiency on the added value of the copra industry (ISIC 10421) in Indonesia.

LITERATURE REVIEW

Competitiveness is the capability of the commodity in order to maintain its position in the market, or when there is competitiveness in the product so that the product is liked by consumers (Meydianawathi, 2014). In order to compete in market

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share, an industry must have competitiveness and must also have an advantage in order to compete with its competitors (Widyaningtyas et al. , 2014).

Comparative advantage has a volatile nature which means that if one country has a comparative advantage in a product, that country must be able to survive and be able to compete with other countries. Thus, comparative advantage analysis is social analysis and not private analysis (Fery Murtiningrum, 2015).

Comparative advantage is a concept first developed by David Ricardo. The concept states that although a country is less efficient or has absolute losses compared to other countries in producing a commodity, it is still there to conduct trade that is mutually beneficial to both parties. A country that has an absolute loss will specialize in producing and exporting commodities with the smallest absolute in other words commodities that have a comparative advantage.

Efficiency shows how the output changes and how the costs required for the output change. This means that efficiency how the costs required to increase each unit of output so that causing increased added value will show increased efficiency (Rosa, 2004). Industrial efficiency is the ratio of added value produced by each industry to the necessary inputs (Hasibuan, 1993).

Efficiency is measured by an indicator calculated from the ratio between the added value and the input value. The level of efficiency smaller than (<1, <100 percent) indicates the condition of the industry is not efficient, because the intermediate costs incurred are greater than the added value created. Efficient conditions achieved at the moment (>1, <100 percent) indicate the industry condition is reached, because each intermediate cost can create added value equal to or greater in value than the intermediate cost.

Value added is stated that the value created by an industry is equal to output minus input costs. Value added has components of wages and salaries, rent, depreciation taxes, and profits (Yuliana, et *al.*, 2004).

Value added can be calculated on price (gross added value) and on the price of production factor (net value added). gross value added minus indirect taxes. In the value-added analysis, it is stated that the greater the output produced, the greater the added value obtained, while the intermediate costs used the greater the value, the smaller the added value of the product.

METHODOLOGY

The scope of this research discusses the competitiveness and efficiency of the industry for the added value of the copra industry in Indonesia from 2011 to 2020. The type and source of data used in this research is secondary data which is a time series type. Types of data include export data, output value, intermediate costs and value added. The data used in this study is copra industry data obtained from the Ministry of Industry, the Central Bureau of Statistics, and the United Nations Commission. This study uses a quantitative descriptive analysis technique. Quantitative descriptive analysis techniques used in this research are added value variables, industrial efficiency and competitiveness explained by tables or graphs supported by relevant theories.

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Quantitative Analysis Technique

Quantitative analysis technique is a technique used to see the influence of competitiveness and efficiency on the added value of the copra industry in Indonesia, by conducting tests through calculations using formulas, such as:

Industry competitiveness

$$RCA = \frac{Xij/Xj}{Xiw/Xw} \qquad (1)$$

Where:
Xij: Export value of commodity I from country J;
Xj: Total export value of country J;
XiW: Export value of commodity I from the world;
XW: Total value of world exports.

Efficiency

$$\text{Efficiency} = \frac{\textbf{Nilai Tambah}}{\textbf{Biaya Madya}} \qquad (2)$$

Multiple Linear Regression Analysis

Multiple Regression Analysis describes the relationship of two or more causal variables, meaning that one variable will affect the other.

$$NT = \alpha + \beta_1 RCA + \beta_2 Eff + e \qquad (3)$$

Where:
NT: Added Value,
α: Constant,
β_1RCA: Competitiveness,
β_2EFF: Efficiency,
e: Errol Standard.
Examiners are conducted; 1. Test Classical Assumptions; 2. Hypothesis Test.

RESULTS AND DISCUSSION

Copra is the part that is produced from the coconut tree plant, to be precise, the meat part of the coconut fruit. Coconut tree or Cocos Nucifera is a plant from the palm (Arecaceae) which is one of the many plants found in the tropics. In its development, one coconut tree alone is able to produce at least 100 coconuts each year, with the characteristic of being an elliptical shape with a diameter of 150-200 mm or around 6-8 inches (Petruzello, 2022).

Usually coconut tree plants are spread through waters in tropical areas by themselves, but besides that the distribution of coconut tree plants is also spread by humans to be precise by people who speak Austronesian who are a group of sailors who lived around 3000 years ago. They sailed using outrigger boats from the Philippine archipelago to the south towards Sulawesi and eastwards until they reached New Caledonia in the South Pacific, from this voyage the population of the coconut tree plant could develop as it is today (Suroto, 2022).

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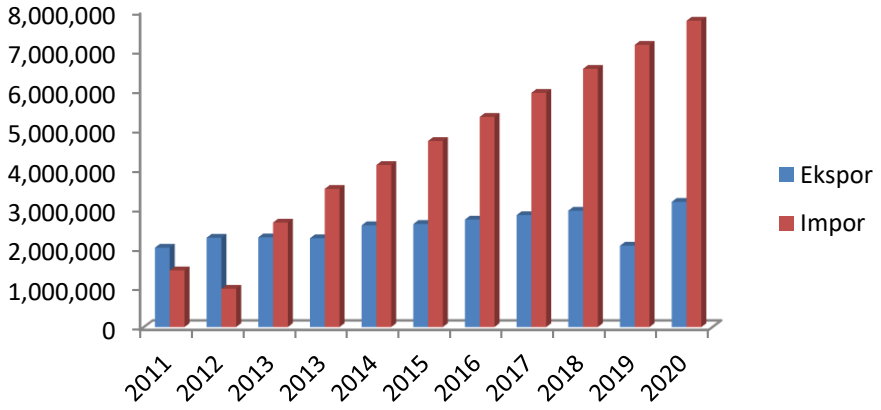
In Indonesia, the part that is most often used is the part of the coconut meat which is converted into copra. The manufacturing process is carried out by drying it in the sun to dry (Arief, 2020). Copra that has gone through the previous process is used for many materials for domestic production as well as for export purposes. Indonesia is one of the largest copra exporting countries in the world, with a proportion of 36 percent of all copra exports in the world in 2020, both exports of copra in raw and processed form, followed by Thailand with an export proportion of 20.1 percent, Papua New Guinea with exports of 20 percent and Malaysia with an export proportion of 6.72 percent. This fact is not surprising that Indonesia is able to compete in the international market when it comes to copra exports.

The development of exports and imports of Indonesia's copra industry over the past 10 years has experienced fluctuating movements.

Figure 2 Export and Import Volume of Indonesian Copra Industry (Tons)



Source: Indonesian Statistics, 2020 (Data Processed)

Indonesia's copra exports during 2011 to 2020 increased every year and the decline only occurred in 2019. Indonesia's copra exports in 2019 amounted to 2,062,432 tons or worth US$ 1.51 million. The low volume of copra exports is related to the decline in copra prices in the international market causing a crisis that hits coconut farmers, where incomes are reduced due to prices that continue to decline (Anonimous, 2011). However, from 2011 to 2020 (except for 2019) Indonesia's copra exports increased from year to year by 5.20 percent to 2,263,320 tons or worth US$ 2.45 million in 2012.

The import volume of Indonesia's copra industry from 2011 to 2020 experienced fluctuations, where in 2013 to 2020 it increased while in 2012 it decreased by 0.32 percent to 970,000 tons or worth US$ 2.0 million. The decrease in copra import volume is due to the scarcity of coconut raw materials and the decline in production in the copra industry. Output Value is the amount of goods or services that are successfully produced from the processing of inputs or production factors through the stages of the production process. Production theory there are production factors that show the relationship between the level of production produced.

Table 1 shows that the total output value of the copra industry during 2011 to 2020 has increased every year with an average of 59.89 billion rupiah. In 2011 copra

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output increased by 0.094 percent or worth 4.60 billion rupiah in 2012. This is similar in 2020, where the output value of the copra industry experienced a significant 0.053 percent or 7.77 billion rupiah. 2020 is the year that has the highest output value, the increase in copra output is one of which is influenced by the addition of inputs in the form of raw materials, the number of workers, the number of companies, and capital to increase the amount of output produced.

Table 1 Copra Industry Output Value in Indonesia 2011-2020

Year	Output	Growth
2011	4.206.456.888	-
2012	4.602.678.899	0,094193765
2013	4.998.900.910	0,086085086
2014	5.395.122.921	0,079261825
2015	5.791.344.932	0,073440775
2016	6.187.566.943	0,068416234
2017	6.583.788.954	0,064035188
2018	6.980.010.965	0,060181457
2019	7.376.232.976	0,056765242
2020	7.772.454.987	0,053716038

Source: Indonesian Statistics, 2020 (Data Processed)

Added value is an addition of value to an object or product through a process so that the product has a higher value than before. The amount of added value of a company depends on the output value and the amount of intermediate middle cost value or input value.

Table 2 it can be seen that the amount of added value in the copra industry from 2011 to 2020 has mostly decreased every year with an average of 22.5 billion rupiah. The value added in 2020 is the lowest value-added condition of 1.5 billion rupiah. This can happen because the comparison of the output value with the intermediate cost value of the year is higher than in the previous year. However, in 2011 the value added of the copra industry increased by 2.9 billion rupiah. The factor that made the highest added value in 2011 was the comparison of the value of output greater than the value of intermediate costs so that the value added increased compared to other years. An increase in value added will increase output because in simple terms output is measured from the ratio of value added to intermediate costs.

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Table 2 Value Added of Copra Industry in Indonesia in 2011-2020

Year	Input	Output	Added value
2011	1.282.360.867	4.206.456.888	2.924.096.021
2012	1.827.870.124	4.602.678.899	2.774.808.775
2013	2.373.379.381	4.998.900.910	2.625.521.529
2014	2.918.888.638	5.395.122.921	2.476.234.283
2015	3.464.397.895	5.791.344.932	2.326.947.037
2016	4.009.907.152	6.187.566.943	2.177.659.791
2017	4.555.416.409	6.583.788.954	2.028.372.545
2018	5.100.925.666	6.980.010.965	1.879.085.299
2019	5.646.434.923	7.376.232.976	1.729.798.053
2020	6.191.944.180	7.772.454.987	1.580.510.807

Source: Indonesian Statistics, 2022 (Data Processed)

The analysis carried out using the Eviews 9 program, a regression equation was obtained on the effect of competitiveness and efficiency on the value added of the copra industry in Indonesia, which was stated as follows:

Table 3 Model estimation results

Dependent Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	21.39090	0.068657	311.5634	0.0000
Competitiveness	0.077659	0.021877	3.549850	0.0093
Efficiency	0.305797	0.014863	20.57478	0.0000
Summary				
R^2	0.984671			
Adj. R^2	0.980292			
F- Statistic	0.000000			

Source: Author Computation, 2022

The results of multiple linear regression analysis that has been carried out, it is known that:

$$Ln = 0.0000 + 0.0093(Competitiveness) - 0.000(Efficiency) + e$$

The regression results that have been carried out show that the probability is small from 0.05 which is 0.000000. This states that competitiveness and efficiency both have a positive and significant influence on the value added of the copra industry in Indonesia. That is, if there is an addition to competitiveness and efficiency, the addition also has an impact on added value. When competitiveness and efficiency increase, the added value of the copra industry will also increase. Vice versa, if there is a reduction in competitiveness and efficiency, the value added of the copra industry will decrease.

The variable t values of competitiveness and efficiency are 3.549850 and 20.57478 with n = 10 and df = 7, respectively, with a double-sided test t table at α = 20%, t table = 1.415. Therefore, t statistics > t tables, it can be concluded that competitiveness and efficiency have a positive and significant effect on the added value of copra. When there is an increase in competitiveness and efficiency, the added value of copra will also increase.

The F test, the F value of together of 224.8327 is greater than F of 4.74 with a significance of 0.000000. This means that the variables Competitiveness, Efficiency

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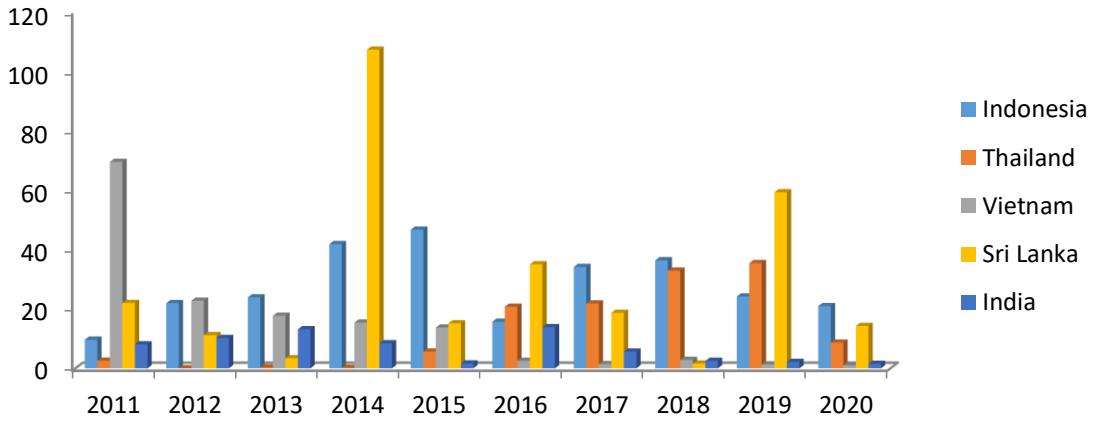
do not significantly affect the value added in Indonesia.

The value of the coefficient of determination (R^2) is 0.984671 = 98 percent, this means that the variables of competitiveness and efficiency are able to explain 98 percent of the added value of the copra industry in Indonesia and the remaining 2 percent is influenced by other factors outside the model.

Figure 3 Copra's Competitiveness in Indonesia in 2011-2020



Source: UN Comtrade, 2020 (Data Processed)

On an international scale, a country has an advantage over other countries in a commodity. One way to find out a country has competitiveness against other countries is by using a comparative advantage analysis with HS code 120300.

Data from UN Comtrade from 2011 to 2020, it shows that the copra industry has experienced fluctuations, with an average RCA value of 27,361. This value shows that the copra industry is included in the exporter category. In the table above, the most prominent are the State of Sri Lanka, the State of Vietnam and the State of Indonesia. This is because the three countries export copra abroad.

The comparison of Indonesia's copra industry with Sri Lanka's country is that its value is still above Sri Lanka but when compared to India, and Thailand Indonesia is still said to be superior because of its competitiveness of more than 1. Even though Indonesia is said to be the country that has the largest coconut in the world, the fact is that Indonesia in the field of production of processed coconut products is still number two in the world. Not only the raw material factor that makes Indonesia still less competitive with Sri Lanka country but also the age factor of the plant the condition of the plants in Indonesia which on average are old and the majority of coconut land ownership owned by the community makes the coconut plant cared for in a rough manner which results in reduced coconut tree productivity.

So in accordance with the theory of comparative advantage according to David Ricardo in his book principles of political economy and taxation that a country is less efficient than other countries in producing both types of commodities produced, but still remains the same in conducting trade that benefits both parties. The results of this study are in line with the research conducted by amelia et al., (2021) and ramadhani et al., (2013) the results of their research, namely the Indonesian copra commodity in the international market has low competitiveness when compared to other countries.

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Efficiency can be interpreted as the ability to use production factors to the maximum extent possible to obtain the desired result. The level of efficiency is related to the economic cost factor, if an industry experiences a high economic cost value, it causes the industry to be inefficient which will ultimately affect labor productivity and so on, among others. In this equation, the efficiency level of the Indonesian copra industry is measured by an indicator calculated from the ratio between added value and intermediate costs.

In Table 4 it shows that the level of efficiency in the copra industry in Indonesia for 10 yearsfrom 2011 to 2020 reached an average of 834 percent. The efficiency level of the copra industry has decreased every year, as seen in the table above, the highest efficiency rate in 2011 was 228 percent. The increase in efficiency is due to the increase in copra industry production in Indonesia in maximizing production output. Meanwhile, in 2020 the efficiency was 26 percent, where conditions in the copra industry were fairly low. The factor that causes the decline in the efficiency of the copra industry is due to the high production costs that must be incurred by the company in the production process.

Figure 4 Copra Industry Efficiency in Indonesia 2011-2020

Year	Added Value	Intermediate Fees	Efficiency (%)
2011	2,924,096,021	1,282,360,867	228
2012	2,774,808,774	1,827,870,124	152
2013	2,625,521,529	2,373,379,381	111
2014	2,476,234,283	2,918,888,638	85
2015	2,326,947,037	3,464,397,895	67
2016	2,177,659,791	4,009,907,152	54
2017	2,028,372,545	4,555,416,409	45
2018	1,879,085,299	5,100,925,666	37
2019	1,729,798,053	5,646,434,923	31
2020	1,580,510,807	6,191,944,180	26
Average	22,523,034,139	37,371,525,235	834

Source: Indonesian Statistics, 2020 (Data Processed)

In line with the theory from Hasibuan 1993 argues that the efficiency of an industry, where the industry utilizes existing inputs to produce output with the lowest production costs. The industry can be said to be already efficient if the industry reaches an efficiency value of >1 or >100 percent, which indicates that the industry is producing exactly at the maximum limit of production.

The regression results that have been carried out show that the probability is small from 0.05 which is 0.000000. This states that competitiveness and efficiency both have a positive and significant influence on the added value of the copra industry in Indonesia.

CONCLUSIONS

The competitiveness of the copra industry from year to year in the period 2011 to 2020 has tended to increase. Proved by calculations using the RCA method get RCA results of more than 1. The average competitiveness of the Indonesian copra industry is 25.63. It states that the copra industry in Indonesia, India, Sri Lanka,

Thailand, and Vietnam belongs to the exporter category. The efficiency value in the copra industry in Indonesia has not reached the maximum value, because the average efficiency provided from 2014 to 2020 is only 0.83 which means that the copra industry is not yet efficient. The effect of competitiveness and efficiency on added value in the period 2011 to 2020 has a significant positive influence on added value.

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